APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,709	08/25/2003	Scnis Busayapongchai	60027.0303US01/BS030022	2462

23552 7590 02/06/2007	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903	SHAH, PARAS D	
	ART UNIT	PAPER NUMBER
	2609	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   This communication is in response to the Application filed on 8/25/2003.

Drawings

2.   The drawings are objected to because Figure 2 element 240 states "Test to

Speech Engine". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are

required in reply to the Office action to avoid abandonment of the application. Any

amended replacement drawing sheet should include all of the figures appearing on the

immediate prior version of the sheet, even if only one figure is being amended. The

figure or figure number of an amended drawing should not be labeled as "amended." If

a drawing figure is to be canceled, the appropriate figure must be removed from the

replacement sheet, and where necessary, the remaining figures must be renumbered

and appropriate changes made to the brief description of the several views of the

drawings for consistency. Additional replacement sheets may be necessary to show the

renumbering of the remaining figures. Each drawing sheet submitted after the filing date

of an application must be labeled in the top margin as either "Replacement Sheet" or

"New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the

examiner, the applicant will be notified and informed of any required corrective action in

the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3.   Claim 3 objected to because of the following informalities: "phase" in line 3

should be "phrase". Appropriate correction is required.

4.   Claim 4 is objected to because of the following informalities: "a confidence" in

line 2 should be "the confidence level". Appropriate correction is required.

5.   Claim 16 is objected to because of the following informalities: "a grammar sub-

tree" in line 3 should be "the grammar sub-tree". Appropriate correction is required.

6.   Claim 22 is objected to because of the following informalities: "a speech

recognition engine" in line 3 should be "the speech recognition engine". Appropriate

correction is required.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

8.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
        obviousness or nonobviousness.

9.   Claims 1-6, 8-13,17-19, and 22-24 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Kennewick et al. (US PGPub 2004/0044516) in view of Crepy et al.

(US 6,622,121).

As to claims 1 and 18, Kennewick et al. discloses the improvement of speech

recognition engine, comprising: identifying one or more utterances (see page 1, right

column, [0010], lines 3-4) for recognition by a speech recognition engine (see Figure 1,

element 120 and page 6, right column, [0088], line 4); passing the one or more

identified utterances to a text-to-speech module (see page 1, right column, [0012], lines

8-9 and Figure 1, element 124); analyzing each utterance (see page 14, left column,

[0188], line 8) to determine how close each recognized utterance approximates to the

audio pronunciation from each utterance derived (see page 14, left column, [0188], lines

8-10). However, Kennewick et al. does not specifically disclose the passing of the audio

pronunciation of the identified utterance to the speech recognition engine and creating

an utterance for each audio pronunciation that was passed. Crepy et al. discloses the

passing of the audio pronunciation of each of the utterances to the speech recognition

engine (see col. 1, line 65); creating an utterance for each audio pronunciation passed

to the speech recognition engine (see col. 1, line 66-67). It would have been obvious to

one of ordinary skilled in the art to have modified the identification of utterances and the

analysis of the utterance presented by Kennewick et al. with the utilization of the output

of the text to speech module into the speech recognition engine as presented by Crepy

et al. The motivation to combine these two references involves testing the recognition of

a spoken input (see Crepy et al., Abstract).

As to claim 2, Kennewick *et al.* discloses assigning a confidence score to each utterance (see Figure 5, element 506).

As to claims 3 and 19, Kennewick *et al.* discloses the assigning of confidence score to each recognized utterance based on a confidence level associated with the utterance based on prior speech recognition engine training (see page 10, left column, [0151], line 4-5).

As to claims 4 and 10, Kennewick *et al.* discloses the determination being made of whether the recognized utterance is the same as the utterance derived by the speech recognition engine based on prior speech recognition training (see page 10, right column, [0151], lines 4-8) (e.g. It should be noted that there is a dictionary that is used to see whether the recognized utterance matches). It is inherent that the words from the dictionary and the words from the utterance are matched for similarity.

As to claims 5 and 11, Kennewick *et al.* discloses wherein if the confidence score exceeds an acceptable level designating the recognized utterance as accurately recognized by the speech recognition engine (see page 14, left column, [0188], lines 30-33).

As to claim 6, Kennewick *et al.* discloses wherein if the confidence score less than a certain value, a modification is made to the speech recognition engine to recognize the word (see page 14, left column, [0031]) (e.g. If the confidence level is less than a value, the system requests verification from a user or asks a question to remove any ambiguity. This is seen as a modification to the speech recognition engine to interpret the utterance).

As to claim 8, Kennewick *et al.* discloses whereby modifying the speech recognition engine includes altering the pronounced utterance associated with the confidence score that is less than a threshold value (see page 10, right column, [0153], lines 16-21) (e.g. The additional information obtained from the user removes the ambiguity in the uttered word due to low confidence. Thus, the uttered word is altered to be recognized) such that the altered audio pronunciation obtains an acceptable confidence score upon next pass (see page 10, right column, [0154], lines 17-19) (e.g. The confidence scores are updated as the system learns more information).

As to claim 9, Kennewick *et al.* discloses the reduction of the confidence score threshold level (see page 10, right column, [0154], lines 17-19). It is inherent that the constant update and learning of the system presented in the reference would alter the confidence score threshold as it would alter the confidence level of the word.

As to claim 12, Kennewick *et al.* discloses the loading of utterances when identifying one or more utterances to be recognized (see Figure 1, element 112 and page 5, right column, [0081], line 1) (e.g. It is inherent to include a memory device for storing the dictionary containing the utterances to be recognized. Further, the reference indicates its relevance to computing devices).

As to claim 13, Kennewick *et al.* discloses the extracting of one or more utterance via a dictionary unit (see page 10, left column, [0147], lines 2-4) (e.g. It should be noted that extraction is done by using the information from the dictionary).

As to claim 17, Crepy *et al.* discloses the conversion of the audio pronunciation from audio format to a digital format (see col. 4, line 57-58) (e.g. The reference states

that the conversion is done after text to speech synthesis. The conversion from audio to

digital before the signal passes into the speech recognition engine or by the speech

recognition engine (which is done before the recognition process) will have no effect on

the result (utterance recognition)); and analyzing phonetically the audio pronunciation of

the utterance to create the recognized word (see col. 4, line 59-64) (e.g. it should be

noted that in order to compare the results from storage to that uttered, comparisons are

done between the two. This would involve comparing the phonemes of the uttered word

and the stored word).

As to claim 22, Kennewick *et al.* discloses the improvement of speech

recognition engine, comprising: identifying one or more utterances (see page 1, right

column, [0010], lines 3-4) for recognition by a speech recognition engine (see Figure,

element 120 and page 6, right column, [0088], line 4); passing the one or more

identified utterances to a text-to-speech module (see page 1, right column, [0012], lines

8-9 and Figure 1, element 124); analyzing each utterance (see page 14, left column,

[0188], line 8) to determine how close each recognized utterance approximates to the

audio pronunciation from each utterance derived (see page 14, left column, [0188], lines

8-10); assigning a confidence score to each recognized utterance based on speech

recognition engine's confidence in reach recognized utterance based on prior training of

the speech recognition engine to recognize similar words (see page 10, right column,

[0151], lines 4-8) (e.g. It should be noted that there is a dictionary that is used to see

whether the recognized utterance matches); if the confidence score is less than an

acceptable threshold, modifying the speech recognition engine to recognize the

utterance (see page 14, left column, [0031]) (e.g. If the confidence level is less than a

value, the system requests verification from a user or asks a question to remove any

ambiguity. This is seen as a modification to the speech recognition engine to interpret

the utterance). However, Kennewick *et al.* does not specifically disclose the deriving

and passing of the audio pronunciation of the identified utterance to the speech

recognition engine and creating an utterance for each audio pronunciation that was

passed. Crepy *et al.* discloses the passing of the audio pronunciation of each of the

utterances to the speech recognition engine (see col. 1, line 65); creating an utterance

for each audio pronunciation passed to the speech recognition engine (see col. 1, line

66-67). It would have been obvious to one of ordinary skilled in the art to have modified

the identification of utterances and the analysis of the utterance presented by

Kennewick *et al.* with the utilization of the output of the text to speech module into the

speech recognition engine as presented by Crepy *et al.* The motivation to combine

these two references involves testing the recognition of a spoken input (see Crepy *et

al.*, Abstract).

As to claim 23, Kennewick *et al.* discloses whereby modifying the speech

recognition engine includes altering the pronounced utterance associated with the

confidence score that is less than a threshold value (see page 10, right column, [0153],

lines 16-21) (e.g. The additional information obtained from the user removes the

ambiguity in the uttered word due to low confidence. Thus, the uttered word is altered to

be recognized) such that the altered audio pronunciation obtains an acceptable

confidence score upon next pass (see page 10, right column, [0154], lines 17-19) (e.g.

The confidence scores are updated as the system learns more information).

As to claim 24, Kennewick *et al.* discloses the reduction of the confidence score

threshold level ((see page 10, right column, [0154], lines 17-19). It is inherent that the

constant update and learning of the system presented in the reference would alter the

confidence score threshold as it would alter the confidence level of the word.

10.   Claims 7 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Kennewick *et al.* and Crepy *et al.* as applied to claim 12 above, and further in view

of Knott *et al.* (US PGPub 2003/0191648) as applied to claim 5 and 19 above, and

further in view of Bickley *et al.* (US 7,013,276).

As to claims 7 and 20, Kennewick *et al.* and Crepy *et al.* disclose improving the

performance of a speech recognition engine. However, Kennewick *et al.* and Crepy *et*

al. do not specifically disclose the notification to a developer when the score is lower

than a threshold value. Bickley *et al.* discloses a alert mechanism for words that are

similar and are subject to confusion (see col. 10, lines 63-65) from threshold calculation

(see col. 10, lines 38-40). It would have been obvious to one of ordinary skilled in the art

to modify the speech recognition performance methods presented by Kennewick *et al.*

and Crepy *et al.* by the use of a notification sent to a software developer when value is

below threshold. The motivation to combine the two references involves the

distinguishing between similar words, which may not be recognized by speech

recognition engines (see Bickley *et al.* col. 2, line 27-36).

As to claim 21, Kennewick *et al.* discloses the extracting of one or more utterance via a dictionary unit (see page 6, right column, [0088], lines 4-6) (e.g. It should be noted that extraction is done by using the information from the dictionary); to pass each extracted utterance to the text-to-speech converter (see page 6, right column, [0089], lines 1-7).

11.   Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kennewick *et al.* and Crepy *et al.* as applied to claim 12 above, and further in view of Knott *et al.* (US PGPub 2003/0191648).

As to claim 14, Kennewick *et al.* and Crepy *et al.* disclose improving the performance of a speech recognition engine. However, Kennewick *et al.* and Crepy *et al.* do not specifically disclose the categorizing of utterance by grammar type. Knott *et al.* discloses the categorizing of the utterance by answer type and the grouping of the answers to either indicate affirmative or a refutation (see page 3, right column, [0021], lines 5-7) (e.g. The following categorizing of affirmations and refutation is similar to what the applicant is interpreting grammar type to be). It would have been obvious to one of ordinary skilled in the art to modify the speech recognition performance methods presented by Kennewick *et al.* and Crepy *et al.* by the use of categories for words as shown by Knott *et al.* The motivation to combine the two references involves various answers given by users (see Knott *et al.*, page 1, left column, [0003], lines 1-4).

As to claim 15, Knott *et al.* discloses the inclusion of the subcategories as a group containing all utterances (see page 3, right column, [0021], lines 5-7)) (e.g. The glossary contains both the refutations and affirmations).

As to claim 16, Knott *et al.* discloses the identifying of an utterance for recognition by identifying the category for which the spoken word belongs (see page 3, right column, [0021], lines 5-13) (e.g. It is inherent that depending when finding the confidence score the value the correct category for which the spoken word is associated with is identified).

Conclusion

12.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The US 6,078,885 is cited to teach a revise phonetic transcriptions of words in a dictionary. The US 6,119,085 is cited to teach a method for finding differences in pronunciations between a vocabulary and a text to speech engine. The US 7,006,971 is cited to teach a method recognizing speech utterance by letter sequence.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paras Shah whose telephone number is (571)270-1650. The examiner can normally be reached on MON.-FRI. 7:30a.m.-5:00p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on (571)272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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P.S.

1/17/07

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SUPERVISORY PATENT EXAMINER